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Deep Learning Pedagogy Training, Self-Assessed Pedagogical Competence, and Follow-Up Needs among Batam Community Learning Center Tutors

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ABSTRACT

Evaluating deep learning pedagogy training in Community Learning Centers (PKBM) requires distinguishing participants' evaluations of training delivery, self-assessed competence, and evidence of classroom application. This study examines these three dimensions and identifies follow-up support needs among PKBM tutors in Batam, Indonesia. A descriptive mixed-methods approach combined a survey of 46 tutors, written accounts from tutors and managers, and training-document review. Survey means and item-response distributions were compared descriptively with themes in the written accounts. Mean ratings across five training evaluation dimensions ranged from 4.46 to 4.61, with facilities and services rated highest (4.61). Mean self-assessment ratings across four pedagogical competence dimensions ranged from 4.29 to 4.33, led by learner-centered teaching (4.33). For items B7 and B15, respectively, 19.6% and 13.0% of tutors selected the moderately capable category. Written accounts described needs-informed planning and participatory activities but no structured system for monitoring subsequent teaching practice. Together, the findings identify a gap between favorable training evaluations and the evidence available to assess classroom application. Without pre-training measures, a comparison group, or classroom observations, competence gains and training effects cannot be inferred.

Keywords: training management, deep learning pedagogy, pedagogical competence, community learning center tutors, nonformal education

INTRODUCTION

Community Learning Centers (Pusat Kegiatan Belajar Masyarakat, PKBM) provide nonformal education to learners with diverse educational backgrounds, life experiences, ages, and needs. Responding to this diversity calls for contextualized learning objectives, active learning, and assessment that guides instructional support. A review of PKBM governance by Dadang et al. [1] identifies collaboration, accountability, and leadership as important dimensions of service quality. Sukmana et al. [2] identify the need to strengthen equivalency-education tutors' expertise in andragogy, technology, and learning management. In a different nonformal-education setting, Palupi and Sugito [3] associate educators' professional development with institutional support and educator agency. Taken together, these studies indicate that professional learning involves both pedagogical capability and institutional conditions, neither of which can be assessed through training attendance alone.

Batam provides a relevant setting for examining tutors' professional development because PKBM serve learners with varied needs across urban and island communities. A Batam City Education Office summary for the 2025/2026 academic year recorded 36 active PKBM and 319 tutors [4]. The Ministry of Primary and Secondary Education's Out-of-School Children Dashboard documents educational access rather than tutors' competence [5]. Pusvariauwaty et al. [6] highlight professional development challenges for educators in Batam's hinterland areas. Pohan et al. [7] similarly discuss the importance of management approaches that are responsive to local conditions. Such conditions make it useful to distinguish tutors' immediate training evaluations from the fit of training to workplace needs and the support available after training.

Deep learning pedagogy in Indonesian education policy emphasizes mindful, meaningful, and joyful learning experiences [8]. In equivalency education, these principles must be translated into teaching activities that help learners understand learning goals, connect concepts with their experiences, and reflect on the learning process. Ambarita et al. [9] identify educator readiness, institutional support, and assessment alignment as prerequisites for implementation. Isnayanti et al. [10] describe opportunities and challenges in primary schools; their

findings require careful interpretation because formal schooling differs from equivalency education. Studies of equivalency education by Haifa et al. [11] and Savera and Arbarini [12] examine ways to connect deep learning pedagogy with learners' lived experiences. These applications establish contextual relevance, but not whether trained tutors consistently use the principles in their own classes.

Educators' professional development does not end when training concludes. Cirkony et al. [13] identify active learning, reflection, collaboration, modeling, mentoring, and continuity as important features of professional learning design. Sims et al. [14] distinguish mechanisms for strengthening understanding, motivation, instructional techniques, and habitual practice. A meta-analysis by You et al. [15] shows that professional development outcomes in science education vary according to program characteristics and participants' active engagement. Taken together, this literature supports treating participant reactions, self-assessed capability, and observed teaching practice as distinct evaluation domains requiring different evidence.

Indonesian research also offers closely related accounts of tutor professional development. Hasanah et al. [16] describe tiered tutor training informed by needs analysis and participatory methods. Susanto et al. [17] discuss improving pedagogical competence through training in the use of learning platforms. Anggorowati and Gunawan [18] demonstrate the relevance of educators' competence reflection in digital learning environments. While these studies inform training design and competence development, they do not resolve how participant evaluations, self-assessed capability, and post-training monitoring arrangements relate within the Batam PKBM training context. Without this distinction, favorable training evaluations risk being mistaken for evidence of competence transfer.

This study aims to (1) describe tutors' evaluations of deep learning pedagogy training at PKBM in Batam, (2) describe tutors' post-training self-assessments of pedagogical competence, and (3) compare quantitative findings with qualitative accounts to identify follow-up needs. The contribution is a context-specific comparison of training responses, tutors' self-assessments, and reported mechanisms for documenting classroom application. This comparison can inform the selection of follow-up indicators and mentoring priorities. The data include neither pre-training measurements nor a comparison group; therefore, the analysis cannot estimate competence gains or attribute them to training.

RESEARCH METHODS

Research design and context

This study adopted a descriptive mixed-methods approach to describe evaluations of training delivery and tutors' self-assessed pedagogical competence. The quantitative component comprised a survey; the qualitative component comprised written responses from tutors and managers, supplemented by training documents. Survey summaries and themes from written accounts were examined separately and then juxtaposed to identify convergences, gaps in the available evidence, and follow-up needs. This descriptive juxtaposition was informed by discussions of mixed-methods integration by DeJonckheere et al. [19] and Bazeley [20]. Turner et al. [21] emphasize the importance of specifying the function of each data type in a mixed-methods design. Because data were collected only once after training, the study provides a descriptive account rather than estimates of change or training effects.

Participants and data sources

The survey involved 46 PKBM tutors in Batam who had attended the deep learning pedagogy training. Administrative records from the Batam City Education Office identify 319 tutors across 36 active PKBM [4]. Respondents were accessible training participants, with no documented random selection from the citywide tutor population. The written accounts were supplied by tutors and managers familiar with training delivery; the number contributing to each group was not specified. Accordingly, the survey describes these 46 respondents and cannot support estimates representative of all PKBM tutors in Batam. Subhaktiyasa [22] emphasizes that sampling methods determine the limits of population-level inference.

Instruments and data collection

The researchers used two survey instruments and a written-question guide. The training evaluation instrument comprised 16 items (P1–P16) across five dimensions: information and communication, facilities and services, trainer competence, comfort and effectiveness of training delivery, and access to and usefulness of materials. The perceived pedagogical competence instrument comprised 18 items (B1–B18) across four dimensions: formulation of objectives and identification of prior knowledge, design of deep learning activities, implementation of learner-centered teaching, and assessment and deeper learning. Written questions elicited accounts of planning, participatory activities, teaching practices, and post-training follow-up. Training documents were reviewed as supplementary material. Because psychometric evidence for the instruments was not provided, the scores are treated as descriptive ratings rather than validated measurements of teaching competence.

Data analysis and interpretive boundaries

The analysis summarized dimension means and item-level response frequencies without inferential tests. No pre-training measurements or comparison group were available, and no relationships among dimensions were tested. Written accounts were grouped into themes concerning planning, delivery, pedagogical practice, and mentoring. Table 3 juxtaposes survey patterns with written accounts and distinguishes interpretations supported by the available evidence from claims that remain unverified. Bazeley [20] explains that comparing findings can reveal both agreement and discrepancies across data types. Nowell

et al. [23] emphasize the need for transparent coding procedures to make thematic interpretations traceable. Competence scores in this study represent tutors' self-assessments rather than direct observations of teaching. The available records did not specify all response-scale anchors, cutoffs for rating categories, dispersion statistics, or reliability coefficients. The number of qualitative informants, data collection period, and procedures for coding and checking consistency were also not fully specified. These reporting gaps constrain assessment of measurement quality and qualitative interpretation. Arslan [24] and DeJonckheere et al. [19] emphasize procedural traceability as an important consideration in evaluating qualitative data and mixed-methods integration.

RESULT AND DISCUSSION

Evaluation of deep learning pedagogy training delivery

A total of 46 tutors evaluated five dimensions of training delivery, with mean scores ranging from 4.46 to 4.61 (Table 1). Facilities and services received the highest mean (4.61), followed by trainer competence and delivery (4.53), information and communication (4.51), access to and usefulness of materials (4.49), and comfort and effectiveness of training delivery (4.46). The original survey classified all five dimensions as "very high," although its category cutoffs were not reported. The means and item distributions therefore offer a firmer descriptive basis than the category labels.

Table 1. Mean ratings of training delivery by tutors (n = 46)

Evaluation dimension	Items	Mean	Category
Information and communication	P1–P2	4.51	Very high
Facilities and services	P3–P4	4.61	Very high
Trainer competence and delivery	P5–P11	4.53	Very high
Comfort and effectiveness of training	P12–P13	4.46	Very high
Access to and usefulness of materials	P14–P16	4.49	Very high

Note: Means describe respondents' ratings; category labels follow the survey's original classification

The difference between the highest and lowest mean training evaluation scores was 0.15 points. This small spread is descriptive and does not establish a meaningful difference in satisfaction across dimensions. Without dispersion measures or inferential comparisons, the stability of this ranking is unknown. High ratings for facilities also reflect participant experiences rather than an independent facilities audit. The facilities score thus reflects respondents' favorable experience, not independently verified compliance with a facilities standard.

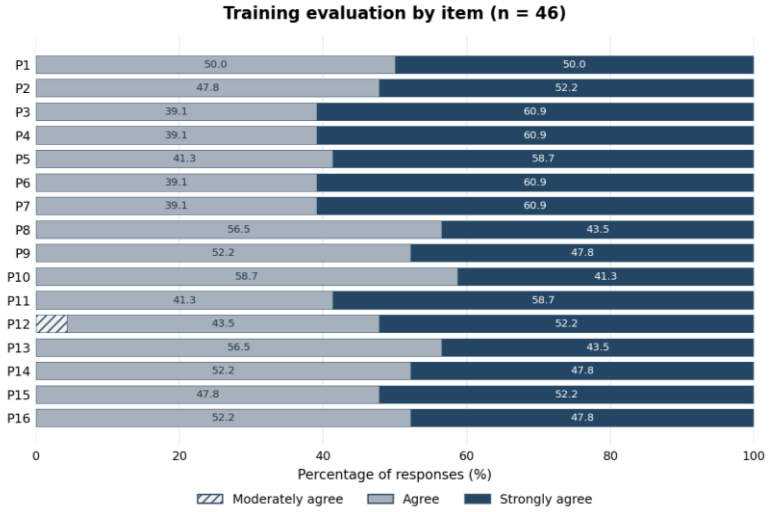


Figure 1. Distribution of responses to 16 training evaluation items (n = 46)

Percentages are based on the number of respondents in each category; each item has 46 responses

Figure 1 shows that Agree and Strongly Agree responses predominated for most training evaluation items. For item P12, two tutors (4.3%) selected Moderately Agree regarding room comfort, while the remaining 44 chose Agree or Strongly Agree. These responses suggest that room comfort was not uniform across participants. Because the causes were not investigated, a targeted follow-up on room capacity, seating arrangements, and facility access would be more defensible than presuming a specific deficiency.

These positive ratings describe reactions to training but cannot identify which activities, if any, contributed most to tutors' learning. Cirkony et al. [13] describe content relevance, active learning, and mentoring as components of professional development, while You et al. [15] report variation in outcomes across

program characteristics. The ratings therefore inform training-process evaluation, not estimates of learning gains or subsequent instructional performance.

Training planning and alignment with tutors' needs

Managers' accounts indicate that organizers considered learning conditions in PKBM and coordinated with local stakeholders when planning the training. Managers explained that information about tutors' needs informed program objectives, content, methods, and evaluation approaches. These reports are consistent with needs-informed planning, although no documented linkage between identified needs, training content, and intended skills was available for verification.

Hasanah et al. [16] identify needs analysis as the basis of tiered tutor training and highlight participatory activities. Sukmana et al. [2] identify needs for strengthening andragogy, technology use, and learning management among equivalency-education tutors. A governance review by Dadang et al. [1] underscores the importance of stakeholder collaboration for program quality. In Batam, a more explicit needs-to-content mapping could distinguish tutors' experience levels, subject areas, and institutional resources and generate observable targets in lesson plans and teaching materials.

Evaluation could move beyond attendance and satisfaction by specifying verifiable instructional outputs. Managers could specify outcomes such as contextualized learning objectives, guiding questions, reflective activities, and assessment tools for learners. Such outputs were not assessed in this study and remain proposals for later training cycles. Ding et al. [25] highlight the importance of aligning professional development programs with local needs, while Sancar et al. [26] situate teacher development within the relationship between learning processes, context, and workplace practice.

Training delivery and participatory learning experiences

Tutors' written responses describe training activities involving discussion, exercises, and participation in active learning. Tutors reported that these activities helped them understand the principles of mindful, meaningful, and joyful learning. These reports describe participants' experiences; they do not independently establish the quality of facilitation or the extent of skills demonstrated. Future evaluation of training delivery should therefore document exercise examples, assessment rubrics, and facilitators' feedback so that the quality of learning experiences can be examined.

In professional development, practical activities provide opportunities to try instructional strategies, receive feedback, and refine pedagogical decisions. Cirkony et al. [13] identify active learning, reflection, and modeling as promising features of professional development. Sherly et al. [27] relate continuing professional development to competency-based training. Whether these features translate into routine PKBM teaching depends on opportunities to adapt strategies and receive feedback, a process not observed in this study.

The principles of deep learning pedagogy need to be translated into observable teaching practices. For mindful learning, tutors could help learners identify objectives, recognize difficulties, and reflect on their learning strategies. For meaningful learning, tutors could connect concepts to learners' work, family, and social environments. For joyful learning, tutors could facilitate safe, inclusive participation that recognizes diverse experiences. Ambarita et al. [9] note that these principles require educator readiness and alignment between objectives and assessment. Indicators such as shared objectives, connections to experiences, and learner reflection could inform future observations of teaching practice.

Differences between formal and nonformal education contexts require attention when applying deep learning pedagogy. The range of learner ages, schedules, and educational goals in PKBM may make direct transfer from conventional school settings inappropriate. Haifa et al. [11] demonstrate the relevance of deep learning pedagogy to equivalency education, while Savera and Arbarini [12] examine its application in Package C programs. these studies establish contextual relevance without verifying which strategies work best for particular tutors or learner groups. Follow-up activities should therefore examine their applicability through cases based on learners' experiences and the circumstances of individual PKBM. Putra et al. [28] consider coordination between planning and evaluation part of learning governance; its application in PKBM likewise requires adaptation to learners' characteristics.

Tutors' perceived pedagogical competence after training

The self-assessment survey of 46 tutors yielded mean scores of 4.29–4.33 across four dimensions of pedagogical competence (Table 2). Learner-centered teaching received the highest score (4.33), followed by objective formulation and identification of prior knowledge (4.32), assessment and deeper learning (4.30), and deep learning activity design (4.29). All dimensions carried the survey's "very high" label, for which numerical cutoffs were not available. These ratings describe confidence at the time of response and cannot quantify change attributable to training.

Table 2. Post-training self-assessment of tutors' pedagogical competence (n = 46)

Competence dimension	Items	Mean	Category
Objectives and prior knowledge	B1–B3	4.32	Very high
Deep learning activity design	B4–B9	4.29	Very high
Learner-centered teaching	B10–B14	4.33	Very high
Assessment and deeper learning	B15–B18	4.30	Very high

Note: Means describe respondents' ratings; category labels follow the survey's original classification.

The highest and lowest competence dimension means differed by only 0.04 points. Without variability estimates, this ranking cannot establish a meaningful gap among dimensions. Item-level distributions in Figure 2 offer more specific starting points for investigating mentoring needs. Visscher et al. [29] show that professional development outcomes for student learning vary and require suitable outcome measures. By the same reasoning, self-assessments cannot replace classroom observations or appraisal of tutors' teaching materials.

Figure 2 shows that 44 tutors (95.7%) selected Capable or Highly Capable for item B1 on formulating learning outcomes. Conversely, nine tutors (19.6%) selected Moderately Capable for B7 on integrating graduate-profile dimensions, and six (13.0%) selected the same category for B15 in the assessment domain. Responses to B7 and B15 provide a basis for follow-up inquiries, not proof of observed instructional deficits.

Formulating objectives and designing learning activities

The mean self-assessment score for formulating objectives was 4.32. Most respondents reported confidence in specifying learning outcomes and identifying prior knowledge. For B1, 95.7% selected Capable or Highly Capable. In deep learning pedagogy, objectives should connect conceptual understanding, application, and reflection with learners' experiences. Nevertheless, tutors' confidence does not establish that objectives in their lesson plans are measurable or aligned with learners' needs. A subsequent review of instructional modules could assess the clarity, measurability, and contextual relevance of the objectives tutors actually prepare.

Learning activity design received a mean of 4.29, the lowest descriptive ranking among the four dimensions. This descriptive position does not establish a deficit but highlights activity design as a reasonable topic for follow-up. Deep learning design should connect objectives, activities, learning resources, and assessment in a coherent sequence. Sims et al. [14] emphasize that new understanding needs support before it develops into techniques used routinely. Subsequent training could therefore focus on developing instructional materials, simulated teaching, peer review, and revising designs in response to feedback.

Nine tutors (19.6%) selected Moderately Capable for item B7 on integrating graduate-profile dimensions. This identifies a group of respondents who perceived their capability as more limited on that item, but the study did not investigate the reasons. A useful question for follow-up is whether tutors have difficulty translating graduate-profile dimensions into teachable activities and assessable outcomes. Managers could provide cross-subject equivalency-education exercises to help tutors integrate these dimensions into learners' contexts rather than merely recognize curriculum terminology.

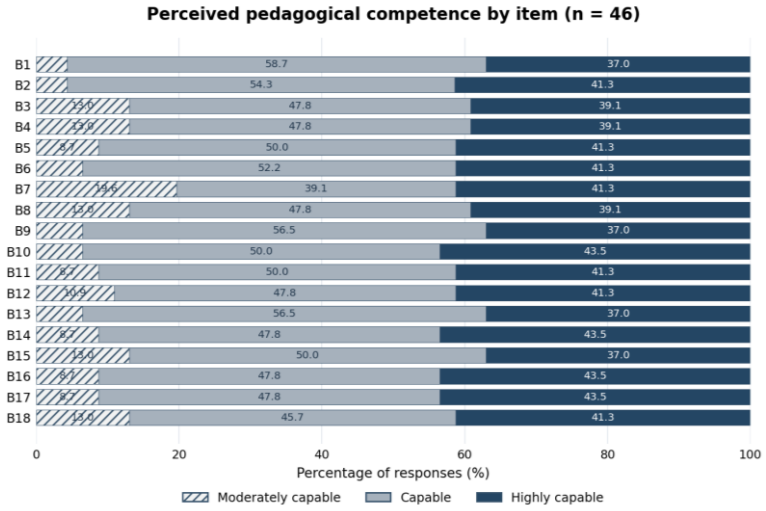


Figure 2. Distribution of responses to 18 perceived pedagogical competence items (n = 46)

Percentages are based on the number of respondents in each category; each item has 46 responses.

Implementing learner-centered teaching

Learner-centered teaching achieved the highest mean self-assessment score (4.33). Tutors reported experiences using guiding questions, discussion, and connections between instructional content and everyday situations. These accounts are consistent with active learning, but neither consistency of use nor responsiveness to learner needs was observed. High self-assessment scores therefore cannot establish the quality of observable teaching practice.

Susanto et al. [17] examine tutor competence training through interactive learning platforms, while Amemasor et al. [30] review professional development support for incorporating new skills into teaching. Both studies lend conceptual support to practice-based follow-up, although their contexts do not establish its effectiveness for Batam PKBM tutors. PKBM managers could combine self-assessment with brief observations, learner-consented teaching recordings, or reviews of instructional materials so that professional

development decisions do not depend on questionnaires alone.

Assessment, reflection, and deeper learning

The mean score for assessment and deeper learning was 4.30. For item B15, six tutors (13.0%) selected Moderately Capable; this pattern suggests a need to clarify assessment-related challenges before selecting support activities. Assessment in deep learning pedagogy should consider not only final answers but also reasoning processes, conceptual difficulties, and learners' capacity for reflection. Ambarita et al. [9] emphasize aligning assessment with meaningful learning experiences. As a follow-up, managers could train tutors to develop rubrics, provide diagnostic feedback, and use assessment findings to plan instructional improvements.

The study did not include examples of assessment instruments developed by tutors, learners' work, or records of feedback provided. Without these materials, the use and quality of process-oriented assessment cannot be examined. Future researchers could examine instructional modules, observation sheets, and assessment portfolios to test alignment between perceptions and practices. Comparing self-assessments with actual assessment tools and practices would clarify which gaps truly require professional support.

Post-training follow-up as a governance need

Qualitative accounts identified post-training monitoring as a prominent area for improved governance. Managers stated that evaluation took place during training, but monitoring the application of deep learning pedagogy once tutors returned to teaching had not become a structured institutional program. Some tutors shared practices informally, but these activities lacked consistent schedules, performance indicators, role allocations, and feedback mechanisms. The lack of a structured follow-up process limits evidence about sustained practice; it does not show that tutors failed to apply their learning.

Nīmante et al. [31] explain that transferring professional development outcomes into workplace practice is influenced by personal and environmental factors. Cirkony et al. [13] likewise identify ongoing support and workplace conditions as important elements of professional development design. These studies explain why positive participant responses represent an initial evaluation stage, while workplace transfer requires separate support and observation. The Batam findings similarly concern the absence of systematic evidence, not a demonstrated failure of implementation.

PKBM managers could establish a follow-up cycle connecting implementation targets, preparation of instructional materials, observation or document review, feedback, and reflection among tutors. Communities of practice could begin with exercises translating graduate-profile dimensions into learning activities and developing assessments, consistent with the response patterns for B7 and B15. Sancar et al. [26] understand professional development as a process connected to the workplace, while Amemasor et al. [30] highlight institutional support for using new skills. Its value would need to be established through documented teaching materials, observations, and learner feedback rather than inferred from satisfaction alone.

Integration of quantitative and qualitative findings

Placing survey results alongside written accounts yielded two complementary patterns. First, respondents evaluated training delivery positively and reported positive perceptions of their pedagogical abilities after training. Second, written accounts indicated needs-informed planning and participatory learning experiences but did not demonstrate a structured system for monitoring classroom application. The central finding is therefore an evidence gap: positive reported experiences and self-assessments were not accompanied by systematic evidence of classroom implementation. Table 3 presents interpretive connections across sources, not statistical or causal relationships.

Table 3. Comparison of survey findings, qualitative accounts, and limits of interpretation

Survey findings	Qualitative accounts	Data-supported interpretation	Evidence limits
Training evaluation: 4.46–4.61	Planning considers needs; activities engage participants	Participants positively evaluated their training experiences	Does not establish objective training quality
Perceived competence: 4.29–4.33	Tutors reported using guiding questions and real-life contexts	Tutors perceived their abilities positively after training	Does not demonstrate improvement or change in performance
B7: Moderately capable 19.6%; B15: 13.0%	Implementation monitoring was not structured	Planning and assessment warrant mentoring priorities	A causal link between these findings has not been tested

Note: The table compares information sources; it does not present statistical relationships or evidence of causality.

The principal contribution of this comparison is to make visible the discontinuity between measuring the training experience and documenting the subsequent use of teaching skills. Surveys capture

responses to content, trainers, and facilities but do not provide direct evidence of instructional material quality or teaching behavior. Sims et al. [14] emphasize that professional development programs should support understanding, technique, and habitual practice. In this setting, managers could supplement training evaluations with instructional material assignments, brief teaching practice, and repeated feedback. These are plausible follow-up options, but their feasibility and value in PKBM settings remain to be assessed.

Visscher et al. [29] review a range of educator professional development interventions and report variation in their effects on student learning. Differences in research designs, educational levels, and outcome measures preclude assuming similar effects among Batam PKBM tutors. Instead, the comparison reinforces the importance of choosing outcomes appropriate to evaluation objectives: participant experiences, teaching behavior, or learners' achievement. Repeated measurements, teaching observations, and analysis of learners' work would be needed if future studies aimed to assess changes in practice and possible training impacts.

Research contribution, practical implications, and limitations

The empirical contribution of this study is to present three levels of information side by side in the Batam PKBM context: training responses, tutors' perceived competence, and arrangements for monitoring post-training practice. The evidence therefore supports an institutional monitoring gap, not a claim that training did or did not improve tutors' competence. Sancar et al. [26] place educators' professional development within the relationship among needs, processes, and workplace contexts. In this setting, the study contributes a descriptive account of an evaluation gap rather than a test of relations among theoretical constructs.

The findings suggest three priorities for program development. First, managers should align training targets with needs reflected in tutors' practices and teaching materials. Second, facilitators could assess these needs through tasks involving activity design, integration of graduate-profile dimensions, and assessment relevant to the B7 and B15 responses. Third, institutions could schedule post-training mentoring and periodically collect evidence of application to evaluate the development of practice. Nīmante et al. [31] emphasize that the transfer of professional learning into the workplace requires enabling conditions. These priorities are practice-oriented implications, not empirically tested interventions.

This study has several limitations. First, the survey was conducted only after training, providing no baseline for calculating changes in competence. Second, pedagogical competence was measured through self-assessment without classroom observation, evaluation of instructional materials, or data on learners' outcomes. Third, the study period, distribution of participants across PKBM, respondent selection, and number of qualitative informants were not fully reported, preventing assessment of coverage across institutions. Fourth, evidence of instrument validity and reliability and procedures for thematic coding were insufficiently reported. The missing psychometric and procedural details limit measurement confidence and transferability, while the single post-training survey prevents claims about improvement. Future studies should document their instruments and analytic procedures and combine repeated measurements with evidence of teaching practice

CONCLUSION

Among 46 surveyed PKBM tutors in Batam, mean ratings across five training-delivery dimensions ranged from 4.46 to 4.61. Facilities and services received the highest score (4.61). Mean self-assessment ratings across four dimensions of pedagogical competence ranged from 4.29 to 4.33, with learner-centered teaching rated highest (4.33). For B7 and B15, respectively, 19.6% and 13.0% selected Moderately Capable. Written accounts indicated needs-informed planning and participatory training experiences, but no structured mechanism for monitoring post-training teaching practice.

The study identifies an evaluation gap: favorable post-training ratings were not matched by systematic evidence of subsequent pedagogical application. A feasible next step for PKBM managers is to combine reviews of instructional materials and assessment tasks with classroom observation and structured feedback. Because there were no baseline measures, comparison group, or classroom observations, the results cannot establish competence gains or attribute them to the training. Future evaluations should combine repeated self-assessment with direct evidence of teaching practice to examine change and sustained implementation.

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